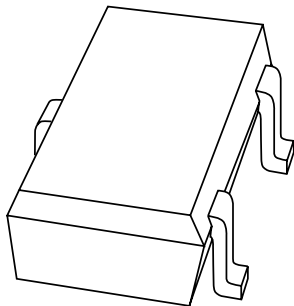


# DATA SHEET



## **PMSTA42; PMSTA43** NPN high-voltage transistors

Product specification  
Supersedes data of 1997 Jun 19

1999 May 21

# NPN high-voltage transistors

# PMSTA42; PMSTA43

### FEATURES

- High current (max. 500 mA)
- High voltage (max. 200 V).

### APPLICATIONS

- High-voltage switching in telephony applications.

### DESCRIPTION

NPN high-voltage transistor in a SOT323 plastic package.  
PNP complements: PMSTA92 and PMSTA93.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
PMSTA42	*1D
PMSTA43	*1E

### Note

- \* = - : Made in Hong Kong.  
\* = t : Made in Malaysia.

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

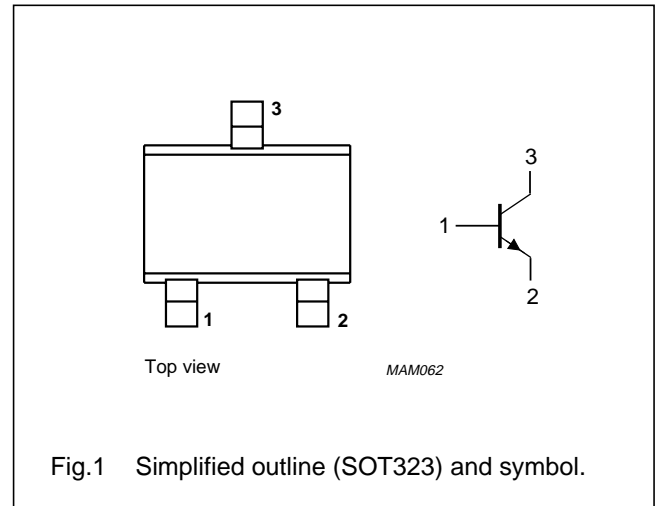


Fig.1 Simplified outline (SOT323) and symbol.

### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	PMSTA42		–	300	V
	PMSTA43		–	200	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	PMSTA42		–	300	V
	PMSTA43		–	200	V
V <sub>EBO</sub>	emitter-base voltage	open collector	–	6	V
I <sub>C</sub>	collector current (DC)		–	100	mA
I <sub>CM</sub>	peak collector current		–	200	mA
I <sub>BM</sub>	peak base current		–	100	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	200	mW
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

### Note

1. Transistor mounted on an FR4 printed-circuit board.

## NPN high-voltage transistors

## PMSTA42; PMSTA43

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	625	K/W

## Note

1. Transistor mounted on an FR4 printed-circuit board.

## CHARACTERISTICS

$T_{amb} = 25\text{ °C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector cut-off current				
	PMSTA42	$I_E = 0; V_{CB} = 200\text{ V}$	–	100	nA
	PMSTA43	$I_E = 0; V_{CB} = 160\text{ V}$	–	100	nA
$I_{EBO}$	emitter cut-off current				
	PMSTA42	$I_C = 0; V_{EB} = 6\text{ V}$	–	100	nA
	PMSTA43	$I_C = 0; V_{EB} = 4\text{ V}$	–	100	nA
$h_{FE}$	DC current gain	$I_C = 1\text{ mA}; V_{CE} = 10\text{ V}$	25	–	
		$I_C = 10\text{ mA}; V_{CE} = 10\text{ V}$	40	–	
		$I_C = 30\text{ mA}; V_{CE} = 10\text{ V};$ note 1	40	–	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 20\text{ mA}; I_B = 2\text{ mA}$	–	500	mV
$C_{re}$	feedback capacitance	$I_C = i_c = 0; V_{CB} = 20\text{ V}; f = 1\text{ MHz}$			
	PMSTA42		–	3	pF
	PMSTA43		–	4	pF
$f_T$	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 20\text{ V}; f = 100\text{ MHz}$	50	–	MHz

## Note

1. Pulse test:  $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$ .

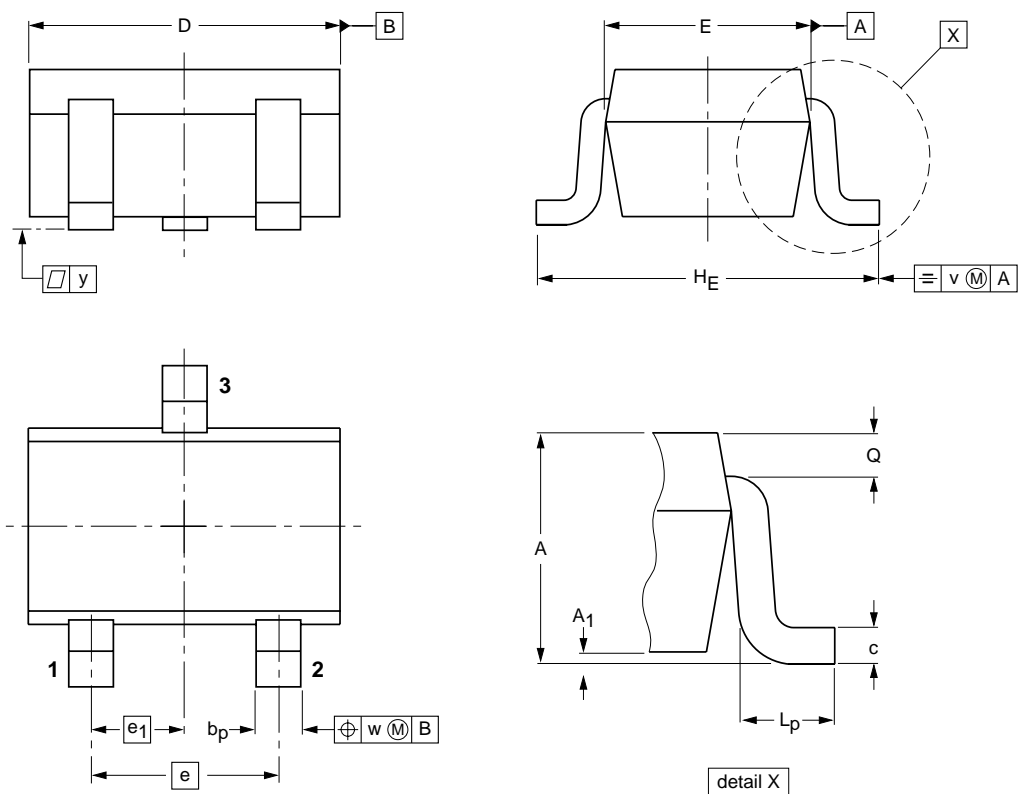
NPN high-voltage transistors

PMSTA42; PMSTA43

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

## NPN high-voltage transistors

## PMSTA42; PMSTA43

**DEFINITIONS**

<b>Data sheet status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
<b>Limiting values</b>	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
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NPN high-voltage transistors

PMSTA42; PMSTA43

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**NOTES**

NPN high-voltage transistors

PMSTA42; PMSTA43

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NOTES

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